GenCore version 5.1.4_p5_4578
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OM protein - protein search, using sw model

Run on: March 17, 2003, 07:12:51 ; Search time 35.9084 Seconds
(without alignments)
118.747 Million cell updates/sec

Title: US-09-787-082-5
Perfect score: 190
Sequence: 1 CKGKGAKCSRLMYDCCTGSCRSGKCTRNGLPG 32

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*
1: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	190	100.0	32	21	AAY84654	Amino acid sequenc
2	173	91.1	29	21	AAY84655	Amino acid sequenc
3	161	84.7	32	21	AAY84656	Amino acid sequenc
4	151	79.5	25	14	AAR32777	MVIIA omega conoto
5	151	79.5	25	14	AAR37752	MVIIA/SNX-111. Sy
6	151	79.5	25	14	AAR39608	MVIIA/SNX111. Syn
7	151	79.5	25	16	AAR76089	Omega conotoxin MV
8	151	79.5	25	18	AAW19569	SNX-279, omega con
9	151	79.5	25	18	AAW19544	Natural omega-cono
10	151	79.5	25	18	AAW12967	Omega conopeptide
11	151	79.5	25	19	AAW72605	Conus genus natura
12	151	79.5	25	20	AAY42335	Omega-conotoxin OC
13	151	79.5	25	20	AAW95564	Omega-conopeptide
14	151	79.5	25	21	AAB14352	Omega-conopeptide
15	151	79.5	25	21	AAY56473	Natural omega cono
16	151	79.5	25	21	AAY43714	Amino acid sequenc
17	151	79.5	25	22	AAB97046	Omega-conch toxin
18	151	79.5	25	22	AAB92219	Toxin peptide SEQ
19	151	79.5	25	22	AAB19442	Primary sequence o
20	151	79.5	25	23	AAO15124	Cone snail w-conot
21	151	79.5	26	12	AAR12546	Omega conotoxin pe
22	151	79.5	26	14	AAR37765	SNX-193. Syntheti
23	151	79.5	26	18	AAW19557	SNX-193, omega con
24	151	79.5	26	21	AAY56485	Analogue omega con
25	151	79.5	27	12	AAR13265	Omega conotoxin pe
26	151	79.5	27	12	AAR13266	Omega conotoxin pe
27	151	79.5	27	14	AAR37768	SNX-196. Syntheti
28	151	79.5	27	14	AAR37769	SNX-197. Syntheti
29	151	79.5	27	18	AAW19560	SNX-196, omega con
30	151	79.5	27	18	AAW19561	SNX-197, omega con
31	151	79.5	27	21	AAY56488	Analogue omega con
32	151	79.5	27	21	AAY56489	Analogue omega con
33	148	77.9	25	12	AAR12547	Omega conotoxin pe
34	148	77.9	25	22	AAB97043	Omega-conch toxin
35	147	77.4	25	22	AAB97044	Omega-conch toxin
36	147	77.4	25	22	AAB97045	Omega-conch toxin
37	145	76.3	25	12	AAR12544	Omega conotoxin pe
38	145	76.3	25	12	AAR12545	Omega conotoxin pe
39	145	76.3	25	12	AAR13264	Omega conotoxin pe
40	145	76.3	25	14	AAR37763	SNX-190. Syntheti
41	145	76.3	25	14	AAR37764	SNX-191. Syntheti
42	145	76.3	25	14	AAR37766	SNX-194. Syntheti
43	145	76.3	25	14	AAR37767	SNX-195. Syntheti
44	145	76.3	25	14	AAR37770	SNX-198. Syntheti
45	145	76.3	25	14	AAR37771	SNX-200. Syntheti

ALIGNMENTS

RESULT 1
AAY84654
ID AAY84654 standard; peptide; 32 AA.
XX
AC AAY84654;
XX
DT 25-JUL-2000 (first entry)
XX
DE Amino acid sequence of a cyclised conotoxin peptide.
XX
KW Cyclised conotoxin; omega-conotoxin; neurological disorder; pain; stroke;
KW traumatic brain injury; migraine; epilepsy; Parkinson's disease;
KW Alzheimer's disease; multiple sclerosis; depression; alpha-conotoxin;
KW neuropsychiatric disorder; schizophrenia; Tourette's syndrome;
KW mu-conotoxin.
XX
OS Synthetic.
OS Conus sp.
XX
FH Key Location/Qualifiers
FT Misc-difference 1..32
FT /note= "peptide is cyclised via these residues"
FT Peptide 1..26
FT /note= "conotoxin"
FT Peptide 26..32
FT /note= "linker"
XX
PN WO200015654-A1.
XX
PD 23-MAR-2000.
XX
PF 14-SEP-1999; 99WO-AU00769.
XX

```
PR   14-SEP-1998;   98AU-0005895.
XX
PA   (UYQU ) UNIV QUEENSLAND.
XX
PI   Craik DJ,  Daly NL,  Nielsen KJ;
XX
DR   WPI; 2000-271376/23.
XX
PT   Novel cyclized conotoxin peptides useful in the therapeutic treatment
PT   of diseases in humans  -
XX
PS   Claim 10; Page 31; 43pp; English.
XX
CC   AAY84654-58 represent cyclised conotoxin peptides of the ivnention. The
CC   cyclised peptides have improved properties, compared to their linear
CC   counterparts. These include resistance to cleavage by proteases, high
CC   chemical stability, improved biophysical properties, reduced side
CC   effects and improved bioavaliability. Cyclised omega-conotoxin peptides
CC   block N-type calcium channels, and so may be useful in the treatment of
CC   neurological disorders such as acute and chronic pain, stroke, traumatic
CC   brain injury, migraine, epilepsy, Parkinson's disease, Alzheimer's
CC   disease, multiple sclerosis, and depression. Alpha-conotoxins may be
CC   useful in the treatment of neuropsychiatric disorders such as
CC   schizophrenia, Parkinson's disease, Alzheimer's disease and Tourette's
CC   syndrome. Mu-conotoxins interact with neuronal channels and may be used
CC   to treat chronic and neuropathic pain. The cyclised conotoxin peptides
CC   can be also used as neuropharmacological probes. Antibodies raised
CC   against the peptides are useful as therapeutic or diagnostic agents,
CC   and can be used to screen for the peptides.
XX
SQ   Sequence   32 AA;

  Query Match             100.0%;  Score 190;  DB 21;  Length 32;
  Best Local Similarity   100.0%;  Pred. No. 3.2e-14;
  Matches   32;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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          ||||||||||||||||||||||||||||||||
Db      1 CKGKGAKCSRLMYDCCTGSCRSGKCTRNGLPG 32


RESULT 2
AAY84655
ID   AAY84655 standard; peptide; 29 AA.
XX
AC   AAY84655;
XX
DT   25-JUL-2000  (first entry)
XX
DE   Amino acid sequence of a cyclised conotoxin peptide.
XX
KW   Cyclised conotoxin; omega-conotoxin; neurological disorder; pain; stroke;
KW   traumatic brain injury; migraine; epilepsy; Parkinson's disease;
KW   Alzheimer's disease; multiple sclerosis; depression; alpha-conotoxin;
KW   neuropsychiatric disorder; schizophrenia; Tourette's syndrome;
KW   mu-conotoxin.
XX
OS   Synthetic.
OS   Conus sp.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 1..29
FT                   /note= "peptide is cyclised via these residues"
FT   Peptide         1..25
FT                   /note= "conotoxin"
FT   Peptide         26..29
FT                   /note= "linker"
XX
PN   WO200015654-A1.
XX
PD   23-MAR-2000.
XX
PF   14-SEP-1999;   99WO-AU00769.
XX
PR   14-SEP-1998;   98AU-0005895.
XX
PA   (UYQU ) UNIV QUEENSLAND.
XX
PI   Craik DJ,  Daly NL,  Nielsen KJ;
XX
DR   WPI; 2000-271376/23.
XX
PT   Novel cyclized conotoxin peptides useful in the therapeutic treatment
PT   of diseases in humans  -
XX
PS   Claim 10; Page 31; 43pp; English.
XX
CC   AAY84654-58 represent cyclised conotoxin peptides of the ivnention. The
CC   cyclised peptides have improved properties, compared to their linear
CC   counterparts. These include resistance to cleavage by proteases, high
CC   chemical stability, improved biophysical properties, reduced side
CC   effects and improved bioavaliability. Cyclised omega-conotoxin peptides
CC   block N-type calcium channels, and so may be useful in the treatment of
CC   neurological disorders such as acute and chronic pain, stroke, traumatic
CC   brain injury, migraine, epilepsy, Parkinson's disease, Alzheimer's
CC   disease, multiple sclerosis, and depression. Alpha-conotoxins may be
CC   useful in the treatment of neuropsychiatric disorders such as
CC   schizophrenia, Parkinson's disease, Alzheimer's disease and Tourette's
CC   syndrome. Mu-conotoxins interact with neuronal channels and may be used
CC   to treat chronic and neuropathic pain. The cyclised conotoxin peptides
CC   can be also used as neuropharmacological probes. Antibodies raised
CC   against the peptides are useful as therapeutic or diagnostic agents,
CC   and can be used to screen for the peptides.
XX
SQ   Sequence   29 AA;

  Query Match             91.1%;  Score 173;  DB 21;  Length 29;
  Best Local Similarity   100.0%;  Pred. No. 2.1e-12;
  Matches   29;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 CKGKGAKCSRLMYDCCTGSCRSGKCTRNG 29
          |||||||||||||||||||||||||||||
Db      1 CKGKGAKCSRLMYDCCTGSCRSGKCTRNG 29


RESULT 3
AAY84656
ID   AAY84656 standard; peptide; 32 AA.
XX
AC   AAY84656;
XX
DT   25-JUL-2000  (first entry)
XX
DE   Amino acid sequence of a cyclised conotoxin peptide.
XX
KW   Cyclised conotoxin; omega-conotoxin; neurological disorder; pain; stroke;
KW   traumatic brain injury; migraine; epilepsy; Parkinson's disease;
KW   Alzheimer's disease; multiple sclerosis; depression; alpha-conotoxin;
KW   neuropsychiatric disorder; schizophrenia; Tourette's syndrome;
KW   mu-conotoxin.
XX
OS   Synthetic.
OS   Conus sp.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 1..32
FT                   /note= "peptide is cyclised via these residues"
FT   Peptide         1..4
FT                   /note= "linker"
FT   Peptide         5..29
FT                   /note= "conotoxin"
FT   Peptide         30..32
FT                   /note= "linker"
XX
PN   WO200015654-A1.
XX
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PD 23-MAR-2000.
XX
PF 14-SEP-1999; 99WO-AU00769.
XX
PR 14-SEP-1998; 98AU-0005895.
XX
PA (UYQU) UNIV QUEENSLAND.
XX
PI Craik DJ, Daly NL, Nielsen KJ;
XX
DR WPI; 2000-271376/23.
XX
PT Novel cyclized conotoxin peptides useful in the therapeutic treatment
PT of diseases in humans -
XX
PS Claim 10; Page 31; 43pp; English.
XX
CC AAY84654-58 represent cyclised conotoxin peptides of the ivnention. The
CC cyclised peptides have improved properties, compared to their linear
CC counterparts. These include resistance to cleavage by proteases, high
CC chemical stability, improved biophysical properties, reduced side
CC effects and improved bioavaliability. Cyclised omega-conotoxin peptides
CC block N-type calcium channels, and so may be useful in the treatment of
CC neurological disorders such as acute and chronic pain, stroke, traumatic
CC brain injury, migraine, epilepsy, Parkinson's disease, Alzheimer's
CC disease, multiple sclerosis, and depression. Alpha-conotoxins may be
CC useful in the treatment of neuropsychiatric disorders such as
CC schizophrenia, Parkinson's disease, Alzheimer's disease and Tourette's
CC syndrome. Mu-conotoxins interact with neuronal channels and may be used
CC to treat chronic and neuropathic pain. The cyclised conotoxin peptides
CC can be also used as neuropharmacological probes. Antibodies raised
CC against the peptides are useful as therapeutic or diagnostic agents,
CC and can be used to screen for the peptides.
XX
SQ Sequence 32 AA;

Query Match 84.7%; Score 161; DB 21; Length 32;
Best Local Similarity 100.0%; Pred. No. 4.8e-11;
Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKGKGAKCSRLMYDCCTGSCRSGKCTR 27
||||||||||||||||||||||||||
Db 5 CKGKGAKCSRLMYDCCTGSCRSGKCTR 31

RESULT 4
AAR32777
ID AAR32777 standard; peptide; 25 AA.
XX
AC AAR32777;
XX
DT 28-JUN-1993 (first entry)
XX
DE MVIIA omega conotoxin peptide.
XX
KW OCT; neuronal damage reduction; ischemia; secondary damage; stroke.
XX
OS Synthetic.
XX
PN US5189020-A.
XX
PD 23-FEB-1993.
XX
PF 02-AUG-1990; 90US-0561766.
XX
PR 22-NOV-1989; 89US-0440094.
PR 02-AUG-1990; 90US-0561766.
XX
PA (NEUR-) NEUREX CORP.
XX
PI Bitner RS, Bowersox SS, Fox JA, Miljanich GP, Tsubokawa M;
PI Valentino KL, Yamashiro DH;
XX
DR WPI; 1993-085564/10.
XX
PT Reducing neuronal damage due to ischaemia - involves using omega
PT conotoxin peptide or fragment
XX
PS Disclosure; Fig 1; 32pp; English.
XX
CC The sequence is that of the MVIIA omega conotoxin (OCT) peptide
CC which can bind to an OCT binding protein, inhibit voltage-gated
CC calcium currents selectively in neuronal tissue and inhibit neuronal
CC transmitter release selectively in neuronal tissue. These properties
CC all occur within the range of those of MVIIB, GVIIA, RVIA, or pref.
CC MVIIA and GVIA OCTs. The peptide can be used in reducing or
CC preventing both anatomical and functional secondary damage related
CC to ischemia, generally as associated with stroke.
XX
SQ Sequence 25 AA;

Query Match 79.5%; Score 151; DB 14; Length 25;
Best Local Similarity 100.0%; Pred. No. 4.9e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKGKGAKCSRLMYDCCTGSCRSGKC 25
|||||||||||||||||||||||||
Db 1 CKGKGAKCSRLMYDCCTGSCRSGKC 25

RESULT 5
AAR37752
ID AAR37752 standard; peptide; 25 AA.
XX
AC AAR37752;
XX
DT 08-SEP-1993 (first entry)
XX
DE MVIIA/SNX-111.
XX
KW Ischaemia; neuronal; omega-conotoxin; OCT; MVIIA; MVIIC; MVIID;
KW MVIIB; GVIA; GVIIA; RVIA; SVIA; TVIA; SVIB; SNX-207; stroke;
KW delayed treatment; antihistamine; blood pressure;
KW N-type voltage-gated Ca currents;
KW N-channel mediated neurotransmitter release.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Disulfide-bond 1..16
FT Disulfide-bond 8..20
FT Disulfide-bond 15..25
XX
PN WO9310145-A.
XX
PD 27-MAY-1993.
XX
PF 12-NOV-1992; 92WO-US09766.
XX
PR 12-NOV-1991; 91US-0789913.
PR 17-JUL-1992; 92US-0916478.
XX
PA (NEUR-) NEUREX CORP.
XX
PI Bitner RS, Bowersox SS, Fox JA, Miljanich GP, Valentino KL;
PI Yamashiro DH;
XX
DR WPI; 1993-182487/22.
XX
PT Redn. of neuronal damage caused by ischaemia - by admin. of cpds.
PT that bind specifically to omega-conotoxin MVIIA binding sites
XX
PS Disclosure; Fig 1; 103pp; English.
XX
CC Ischaemia-related neuronal damage in mammals is reduced by admin.,
CC 4-24 hr after onset of ischaemia, of a cpd. (I) which binds

```
CC   selectively to an omega-conotoxin (OCT) MVIIA site in neuronal
CC   tissue.  (I) has selectivity at least 100 expressed as ratio of
CC   binding affinity for the MVIIA site to that for the MVIIC site.
CC   (I) is one of the OCTs MVIIA, MVIIB, GVIA, GVIIA or RVIA or it is
CC   the cpd. SNX-207.  (I)  is esp. used to reduce neuronal damage
CC   caused by stroke.  By delaying admin. for some time (compare
CC   US5051403 where cpds. are given within 1 hr of the onset of
CC   ischaemia) a greater redn. in neuronal damage is achieved.  (I) is
CC   admin. e.g. by  intracerebroventricular (ICV) injection at 0.1-20
CC   microg/kg, but can also be given i.v. (opt. after treatment with
CC   antihistamines  to minimise redn. in blood pressure caused by (I)).
CC   (I) is also at least as effective as the specified conotoxins for (1)
CC   selective inhibition of N-type voltage-gated Ca currents in neuronal
CC   tissue and (2) selective inhibition of N-channel mediated
CC   neurotransmitter release in neuronal tissue.
CC   Primary sequences of omega-conopeptides are given in AAR37752-62.
CC   Several analog omega-conopeptides are given in AAR37763-76.
XX
SQ   Sequence   25 AA;

  Query Match             79.5%;  Score 151;  DB 14;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 4.9e-10;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 CKGKGAKCSRLMYDCCTGSCRSGKC 25
           |||||||||||||||||||||||||
Db       1 CKGKGAKCSRLMYDCCTGSCRSGKC 25


RESULT 6
AAR39608
ID   AAR39608 standard; peptide; 25 AA.
XX
AC   AAR39608;
XX
DT   20-DEC-1993  (first entry)
XX
DE   MVIIA/SNX111.
XX
KW   Omega conopeptide; OCT; analgesia; inhibition; voltage-gated;
KW   calcium channel; neurone; contraction; guinea pig; ileum;
KW   MVIIA; binding site; toxin; marine; snail; Conus; opiod;
KW   chronic pain; narcotics.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Disulfide-bond  1..16
FT   Disulfide-bond  8..20
FT   Disulfide-bond  15..25
XX
PN   WO9313128-A.
XX
PD   08-JUL-1993.
XX
PF   30-DEC-1992;   92WO-US11349.
XX
PR   30-DEC-1991;   91US-0814759.
XX
PA   (NEUR-) NEUREX CORP.
XX
PI   Gohil K,  Justice A,  Miljanich GP,  Singh T,  Valentino KL;
XX
DR   WPI; 1993-227270/28.
XX
PT   Use of omega-cono-peptide(s) which selectively inhibit
PT   voltage-gated calcium channels - to induce analgesia, enhance
PT   opiate analgesics, treat pain etc.
XX
PS   Claim 1; Fig 1; 90pp; English.
XX
CC   The sequences given in AAR39608-30 are omega conopeptides (OCTs) and
CC   derivatives of these, which may be used to produce analgesia in a
CC   mammal.  These OCTs inhibit voltage-gated calcium channels
CC   selectively in neuronal tissue.  This is shown by the peptides
CC   ability to stimulate contraction in guinea pig ileum and to bind to
CC   OCT MVIIA binding sites present in neuronal tissue.  OCTs are
CC   components of peptide toxins derived from marine snails of the genus
CC   Conus, and act as calcium channel blockers.  These OCTs may be used
CC   to replace opiods in the treatment of chronic pain or to reduce the
CC   opiod dosage required.  This helps to reduce dependence on and
CC   tolerance to opiod narcotics.
XX
SQ   Sequence   25 AA;

  Query Match             79.5%;  Score 151;  DB 14;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 4.9e-10;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 CKGKGAKCSRLMYDCCTGSCRSGKC 25
           |||||||||||||||||||||||||
Db       1 CKGKGAKCSRLMYDCCTGSCRSGKC 25


RESULT 7
AAR76089
ID   AAR76089 standard; peptide; 25 AA.
XX
AC   AAR76089;
XX
DT   02-FEB-1996  (first entry)
XX
DE   Omega conotoxin MVIIA peptide.
XX
KW   Omega conotoxin; marine snail; Conus; voltage-gated Ca channel blocker;
KW   synaptosome; membrane; fish electric organ; mammalian brain; ischaemia;
KW   binding protein; binding affinity; stroke.
XX
OS   Conus sp.
XX
FH   Key             Location/Qualifiers
FT   Disulfide-bond  1..16
FT   Disulfide-bond  8..20
FT   Disulfide-bond  15..25
FT   Modified-site   25
FT                   /note= "amidated C-terminus"
XX
PN   US5424218-A.
XX
PD   13-JUN-1995.
XX
PF   22-NOV-1989;   89US-0440094.
XX
PR   02-AUG-1990;   90US-0561766.
PR   22-NOV-1989;   89US-0440094.
PR   23-MAR-1992;   92US-0855269.
PR   04-NOV-1993;   93US-0147714.
XX
PA   (NEUR-) NEUREX CORP.
XX
PI   Bitner RS,  Bowersox SS,  Fox JA,  Miljanich GP,  Valentino KL;
PI   Yamashiro DH;
XX
DR   WPI; 1995-223694/29.
XX
PT   Identifying cpds. able to reduce neuronal damage caused by ischaemia
PT   - by measuring their affinity to omega conotoxin MVIIA binding site
PT   and ability e.g. to inhibit voltage gated calcium channels
XX
PS   Disclosure; Fig 1; 31pp; English.
XX
CC   The peptides AAR76089-95 are naturally occuring omega conotoxin (OCT)
CC   peptides derived from marine snails of the Conus genus.  The peptide
CC   sequences were used to chemically synthesise the OCT peptide fragments
CC   AAR76096-R76109.  The OCT peptides act as voltage-gated Ca channel
CC   blockers by binding to a 210 kD protein from synaptosomal membrane
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CC   preparations from fish electric organ or mammalian brains.  The peptides
CC   and their synthesised fragments can be used to screen for compounds that
CC   bind to the OCT binding protein, by displacing a high affinity labelled
CC   OCT, such as MVIIA, from a synaptosomal membrane preparation.  The
CC   compounds should have binding affinities and activities at least equal to
CC   those of the natural peptides (Ki 0.44-324 nM).  The screened compounds
CC   are potentially useful in treating ischaemic conditions, esp. stroke, and
CC   can reduce sec. anatomical and functional damage associated with those
CC   conditions.
XX
SQ   Sequence   25 AA;

  Query Match             79.5%;  Score 151;  DB 16;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 4.9e-10;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 CKGKGAKCSRLMYDCCTGSCRSGKC 25
          |||||||||||||||||||||||||
Db      1 CKGKGAKCSRLMYDCCTGSCRSGKC 25


RESULT 8
AAW19569
ID   AAW19569 standard; peptide; 25 AA.
XX
AC   AAW19569;
XX
DT   14-OCT-1997  (first entry)
XX
DE   SNX-279, omega conopeptide derivative used for pain relief.
XX
KW   Conopeptide; cone snail; pain; analgesic; neuropathy; epidural;
KW   N-type voltage-sensitive calcium channel; block; Conus.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Disulfide-bond  1..16
FT   Disulfide-bond  8..20
FT   Misc-difference 12
FT                   /label= Met(O)
FT                   /note= "sulphoxymethionine"
FT   Disulfide-bond  15..25
FT   Modified-site   25
FT                   /note= "amidated"
XX
PN   WO9701351-A1.
XX
PD   16-JAN-1997.
XX
PF   26-JUN-1996;   96WO-US11041.
XX
PR   08-MAR-1996;   96US-0613400.
PR   27-JUN-1995;   95US-0496847.
XX
PA   (NEUR-) NEUREX CORP.
XX
PI   Adriaenssens PI,  Amstutz GA,  Bowersox SS,  Gadbois T;
PI   Gohil K,  Kristipati R,  Luther RR,  Pettus MR;
XX
DR   WPI; 1997-100012/09.
XX
PT   Stable omega conopeptide compositions - for producing analgesia and
PT   for inhibiting progression of neuropathic pain disorders
XX
PS   Claim 3; Fig 3; 47pp; English.
XX
CC   AAW19555-W19572 are omega conopeptides (OCs) derived from natural
CC   peptides from Conus sp. (cone snails). The peptides and their analogues
CC   are used as analgesics acting by blocking N-type voltage-sensitive
CC   calcium channels. The OCs can be used to treat neuropathic pain as a
CC   result of e.g. insult to the spinal cord or peripheral nerves, cancer,
CC   bone degenerative diseases, AIDS, reflex sympathetic dystrophy, herpes
CC   zoster neuropathy, diabetic neuropathy, hyperesthesia, allodynia or
CC   hyperalgesia. The OCs are preferably administered in a medicament via
CC   an epidural route in a continuous infusion or sustained release
CC   formulation. The OCs can provide pain relief when administered
CC   epidurally in the absence of a permeation enhancer, at doses that are
CC   comparable to effective analgesic doses using intrathecal administration.
CC   OC formulations comprising an OC and a carboxylic acid buffer
CC   anti-oxidant. They also confer stability to solutions containing them for
CC   prolonged treatment methods and long-term storage.
XX
SQ   Sequence   25 AA;

  Query Match             79.5%;  Score 151;  DB 18;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 4.9e-10;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 CKGKGAKCSRLMYDCCTGSCRSGKC 25
          |||||||||||||||||||||||||
Db      1 CKGKGAKCSRLMYDCCTGSCRSGKC 25


RESULT 9
AAW19544
ID   AAW19544 standard; peptide; 25 AA.
XX
AC   AAW19544;
XX
DT   13-OCT-1997  (first entry)
XX
DE   Natural omega-conopeptide MVIIA/SNX-111 used for pain relief.
XX
KW   Conopeptide; cone snail; pain; analgesic; neuropathy; epidural;
KW   N-type voltage-sensitive calcium channel; block; Conus.
XX
OS   Conus sp.
XX
FH   Key             Location/Qualifiers
FT   Disulfide-bond  1..16
FT   Disulfide-bond  8..20
FT   Disulfide-bond  15..25
FT   Modified-site   25
FT                   /note= "optionally amidated"
XX
PN   WO9701351-A1.
XX
PD   16-JAN-1997.
XX
PF   26-JUN-1996;   96WO-US11041.
XX
PR   08-MAR-1996;   96US-0613400.
PR   27-JUN-1995;   95US-0496847.
XX
PA   (NEUR-) NEUREX CORP.
XX
PI   Adriaenssens PI,  Amstutz GA,  Bowersox SS,  Gadbois T;
PI   Gohil K,  Kristipati R,  Luther RR,  Pettus MR;
XX
DR   WPI; 1997-100012/09.
XX
PT   Stable omega conopeptide compositions - for producing analgesia and
PT   for inhibiting progression of neuropathic pain disorders
XX
PS   Claim 3; Fig 1, Fig 3; 47pp; English.
XX
CC   AAW19544-W19553 are naturally occurring omega conopeptides (OCs)
CC   isolated from Conus sp. (cone snails). The peptides and their analogues
CC   are used as analgesics acting by blocking N-type voltage-sensitive
CC   calcium channels. The OCs can be used to treat neuropathic pain as a
CC   result of e.g. insult to the spinal cord or peripheral nerves, cancer,
CC   bone degenerative diseases, AIDS, reflex sympathetic dystrophy, herpes
CC   zoster neuropathy, diabetic neuropathy, hyperesthesia, allodynia or
CC   hyperalgesia. The OCs are preferably administered in a medicament via
CC   an epidural route in a continuous infusion or sustained release
```

CC formulation. The OCs can provide pain relief when administered
CC epidurally in the absence of a permeation enhancer, at doses that are
CC comparable to effective analgesic doses using intrathecal administration.
CC OC formulations comprising an OC and a carboxylic acid buffer
CC anti-oxidant. They also confer stability to solutions containing them for
CC prolonged treatment methods and long-term storage.
XX
SQ Sequence 25 AA;

Query Match 79.5%; Score 151; DB 18; Length 25;
Best Local Similarity 100.0%; Pred. No. 4.9e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKGKGAKCSRLMYDCCTGSCRSGKC 25
||||||||||||||||||||||||||
Db 1 CKGKGAKCSRLMYDCCTGSCRSGKC 25

RESULT 10
AAW12967
ID AAW12967 standard; peptide; 25 AA.
XX
AC AAW12967;
XX
DT 22-APR-1997 (first entry)
XX
DE Omega conopeptide SNX-111.
XX
KW Omega conopeptide; analgesic; treatment; neuropathic pain;
KW inhibition; neuronal damage; schizophrenia; tardive dyskinesia;
KW analgesia; acute dystonic reactions; inflammation; epilepsy.
XX
OS Synthetic.
XX
PN US5587454-A.
XX
PD 24-DEC-1996.
XX
PF 30-DEC-1991; 91US-0814759.
XX
PR 15-APR-1993; 93US-0049794.
PR 30-DEC-1991; 91US-0814759.
PR 30-DEC-1992; 92WO-US11349.
XX
PA (NEUR-) NEUREX CORP.
XX
PI Gohil KC, Justice A, Miljanich GP, Singh T, Valentino KL;
XX
DR WPI; 1997-064830/06.
XX
PT Omega cono:peptide(s) - useful as analgesics, esp. for treating
PT neuropathic pain
XX
PS Example 1; Columns 39-40; 58pp; English.
XX
CC The present peptide is an omega conopeptide, useful as an
CC analgesic, especially for treating neuropathic pain. The peptide,
CC which can be prepared by solid phase synthesis, can also be used to
CC inhibit neuronal damage and treat schizophrenia, tardive
CC dyskinesia, acute dystonic reactions, inflammation and epilepsy.
CC In a rat paw formalin test, the peptide had an ED50 of 0.011 microg
CC in phase 1, and 0.011 microg in phase 2 (by intrathecal
CC administration).
XX
SQ Sequence 25 AA;

Query Match 79.5%; Score 151; DB 18; Length 25;
Best Local Similarity 100.0%; Pred. No. 4.9e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKGKGAKCSRLMYDCCTGSCRSGKC 25
||||||||||||||||||||||||||
Db 1 CKGKGAKCSRLMYDCCTGSCRSGKC 25

RESULT 11
AAW72605
ID AAW72605 standard; peptide; 25 AA.
XX
AC AAW72605;
XX
DT 06-JAN-1999 (first entry)
XX
DE Conus genus natural omega-conopeptide MVIIA/SNX-111.
XX
KW Conus genus; marine snail; cone snail; omega-conopeptide; analgesia;
KW nociceptive pain; neuropathic pain; neuronal tissue; conotoxin;
KW inflammation; schizophrenia; tardive dyskinesia; acute dystonic reaction;
KW rheumatoid arthritis; epilepsy.
XX
OS Conus sp.
XX
PN US5824645-A.
XX
PD 20-OCT-1998.
XX
PF 01-NOV-1996; 96US-0742774.
XX
PR 15-APR-1993; 93US-0049794.
PR 30-DEC-1991; 91US-0814759.
PR 03-JUL-1996; 96US-0675354.
PR 01-NOV-1996; 96US-0742774.
XX
PA (NEUR-) NEUREX CORP.
XX
PI Gohil KC, Justice A, Miljanich GP, Singh T, Valentino KL;
XX
DR WPI; 1998-582596/49.
XX
PT Treatment of inflammation, comprises administration of
PT omega-conopeptide - effective to block voltage-gated calcium
PT channels, bind with high affinity to omega-conopeptide binding site,
PT and inhibit neuro-transmitter release
XX
PS Disclosure; Fig 1; 58pp; English.
XX
CC A method has been developed for the treatment of inflammation in a
CC subject. The method comprises administration of an omega-conopeptide
CC effective to: (i) block voltage-gated calcium channels; (ii) bind with
CC high affinity to an omega-conopeptide binding site; and (iii) inhibit
CC neurotransmitter release from nervous tissue. The method is used to
CC treat inflammation and associated pain. The treatment can also be used
CC to produce analgesia (especially in subjects experiencing neuropathic
CC pain); and to treat schizophrenia, tardive dyskinesia and acute dystonic
CC reactions, rheumatoid arthritis, and epilepsy. The present sequence
CC represents a natural omega-conopeptide. Omega-conopeptides are
CC components of peptide toxins produced by marine snails of the genus
CC Conus, and which act as calcium channel blockers.
XX
SQ Sequence 25 AA;

Query Match 79.5%; Score 151; DB 19; Length 25;
Best Local Similarity 100.0%; Pred. No. 4.9e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKGKGAKCSRLMYDCCTGSCRSGKC 25
||||||||||||||||||||||||||
Db 1 CKGKGAKCSRLMYDCCTGSCRSGKC 25

RESULT 12
AAY42335
ID AAY42335 standard; peptide; 25 AA.
XX
AC AAY42335;
XX

DT 20-DEC-1999 (first entry)
XX
DE Omega-conotoxin OCT MVIIA.
XX
KW Calcium channel; neuron; retina; optic nerve; trauma; ischaemia; vision;
KW prevention.
XX
OS Conus sp.
XX
FH Key Location/Qualifiers
FT Disulfide-bond 1..16
FT Disulfide-bond 8..20
FT Disulfide-bond 15..25
FT Misc-difference 25
FT /note= "Optionally contains C-terminal amide"
XX
PN US5965534-A.
XX
PD 12-OCT-1999.
XX
PF 13-MAR-1998; 98US-0039168.
XX
PR 22-NOV-1995; 95US-0562142.
XX
PA (ALCO-) ALCON LAB INC.
XX
PI Hellberg M, Pang I, Kapin M;
XX
DR WPI; 1999-579926/49.
XX
PT Treatment or prevention of retinal or optic nerve head damage comprises
PT administration of an omega-conotoxin derivative -
XX
PS Claim 2; Columns 3-4; 7pp; English.
XX
CC This sequence represents omega-conotoxin OCT MVIIA. Omega-conotoxins
CC selectively block N-type calcium channels responsible for calcium
CC influx in neurons. Acute retinal or optic nerve damage, which can result
CC in the loss of vision, is caused by acute trauma and pathological events
CC such as ischaemia, hypoxia or oedema. The release of excitatory amino
CC acids is implicated in ischaemia-related neuronal and retinal damage,
CC with excitatory amino acid release leading to excessive stimulation of
CC post-synaptic excitatory amino acid receptors, which can result in cell
CC injury. The release of such excitatory amino acids from presynaptic
CC nerve terminals is dependent upon an elevation of calcium in the nerve
CC terminal. This presynaptic calcium influx is mediated by the N-type
CC calcium channels that are inhibited by omega-conotoxins. Intraocular
CC administration of at least one omega-conotoxin could be used for the
CC treatment or prevention of retinal or optic nerve head damage resulting
CC from acute traumatic or acute ischaemic events.
XX
SQ Sequence 25 AA;

Query Match 79.5%; Score 151; DB 20; Length 25;
Best Local Similarity 100.0%; Pred. No. 4.9e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKGKGAKCSRLMYDCCTGSCRSGKC 25
||||||||||||||||||||||||||
Db 1 CKGKGAKCSRLMYDCCTGSCRSGKC 25

RESULT 13
AAW95564
ID AAW95564 standard; protein; 25 AA.
XX
AC AAW95564;
XX
DT 29-MAR-1999 (first entry)
XX
DE Omega-conopeptide MVIIA/SNX-111.
XX
KW Omega-conopeptide; peptide toxin; snail; calcium channel blocker;
KW analgesia; guinea pig ileum; omega-conotoxin; pain; neuropathic.
XX
OS Synthetic.
OS Conus sp.
XX
FH Key Location/Qualifiers
FT Modified-site 25
FT /note= "C-terminal amide"
XX
PN US5859186-A.
XX
PD 12-JAN-1999.
XX
PF 03-JUL-1996; 96US-0675354.
XX
PR 15-APR-1993; 93US-0049794.
PR 30-DEC-1991; 91US-0814759.
PR 03-JUL-1996; 96US-0675354.
XX
PA (NEUR-) NEUREX CORP.
XX
PI Gohil KC, Justice A, Miljanich GP, Singh T, Valentino KL;
XX
DR WPI; 1999-120002/10.
XX
PT Production of analgesia in mammal - by administration of omega
PT cono-peptide(s)
XX
PS Claim 3; Fig 1; 59pp; English.
XX
CC Sequences AAW95564-573 represent primary sequences of natural omega-
CC conopeptides. Omega-conopeptides are components of peptide toxins
CC produced by marine snails of the genus Conus, and which act as calcium
CC channel blockers. The invention relates to a method of producing
CC analgesia in a mammal that comprises administering an omega conopeptide
CC having activities in (a) inhibiting electrically stimulated contraction
CC of guinea pig ileum and (b) selectively binding to omega conopeptide
CC MVIIA binding sites in neuronal tissue, where these activities are
CC within the ranges of those of omega-conotoxins MVIIA and TVIA. The method
CC is used for treating chronic pain, especially neuropathic pain. The
CC present sequence is a specifically claimed example of an
CC omega-conopeptide that can be used in the method of the invention.
XX
SQ Sequence 25 AA;

Query Match 79.5%; Score 151; DB 20; Length 25;
Best Local Similarity 100.0%; Pred. No. 4.9e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CKGKGAKCSRLMYDCCTGSCRSGKC 25
||||||||||||||||||||||||||
Db 1 CKGKGAKCSRLMYDCCTGSCRSGKC 25

RESULT 14
AAB14352
ID AAB14352 standard; peptide; 25 AA.
XX
AC AAB14352;
XX
DT 06-DEC-2000 (first entry)
XX
DE Omega-conopeptide MVIIA/SNX-111.
XX
KW Marine snail; omega-conopeptide; calcium channel blocker; MVIIA; SNX-111;
KW toxin; analgesic; antiinflammatory; anticonvulsant; neuroleptic;
KW norepinephrine release inhibitor; schizophrenia; tardive dyskinesia;
KW acute dystonic reaction; inflammation; epilepsy.
XX
OS Conus sp.
XX
FH Key Location/Qualifiers
FT Disulfide-bond 1..16

```
FT   Disulfide-bond  8..20
FT   Disulfide-bond  15..25
FT   Modified-site   25
FT                   /note= "C-terminal amide"
XX
PN   US6087091-A.
XX
PD   11-JUL-2000.
XX
PF   23-APR-1999;   99US-0298017.
XX
PR   01-NOV-1996;   96US-0742774.
PR   15-APR-1993;   93US-0049794.
PR   03-JUL-1996;   96US-0675354.
PR   21-AUG-1998;   98US-0138439.
PR   30-DEC-1991;   91US-0814759.
XX
PA   (ELAN-) ELAN PHARM INC.
XX
PI   Singh T,  Gohil KC,  Valentino KL,  Miljanich GP,  Justice A;
XX
DR   WPI; 2000-490177/43.
XX
PT   Selecting a compound for producing analgesia involves measuring
PT   activity of test compound in blocking voltage-gated calcium channels,
PT   binding to omega conopeptide binding site and inhibiting norepinephrine
PT   release -
XX
PS   Example 1; Fig 1; 58pp; English.
XX
CC   The present sequence is an omega-conopeptide from marine snails of
CC   the genus Conus. Omega-conopeptides are components of peptide toxins
CC   produced by the cone snails, and which act as calcium channel blockers.
CC   Natural omega-conopeptides and their derivatives may be useful for
CC   producing analgesia in nociceptive and neuropathic pain. The peptides
CC   bind to omega-conopeptide binding sites, which are present mainly in
CC   neuronal tissue, and inhibit norepinephrine release from nervous tissue.
CC   Conopeptides such as MVIIA and TVIA are effective as therapeutic agents
CC   for treating neurogenic conditions such as schizophrenia, tardive
CC   dyskinesia and acute dystonic reactions, inflammation and epilepsy.
XX
SQ   Sequence   25 AA;

  Query Match             79.5%;  Score 151;  DB 21;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 4.9e-10;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 CKGKGAKCSRLMYDCCTGSCRSGKC 25
           |||||||||||||||||||||||||
Db       1 CKGKGAKCSRLMYDCCTGSCRSGKC 25


RESULT 15
AAY56473
ID   AAY56473 standard; peptide; 25 AA.
XX
AC   AAY56473;
XX
DT   16-FEB-2000  (first entry)
XX
DE   Natural omega conopeptide MVIIA/SNX-111.
XX
KW   Omega conopeptide; analgesic; nociceptive; neuropathic; pain;
KW   conotoxin; marine snail; peptide toxin; inflammation; binding;
KW   voltage-gated calcium channel; inhibition; norepinephrine;
KW   noradrenaline; anti-inflammatory.
XX
OS   Conus sp.
XX
PN   US5994305-A.
XX
PD   30-NOV-1999.
XX
PF   21-AUG-1998;   98US-0138439.
XX
PR   01-NOV-1996;   96US-0742774.
PR   15-APR-1993;   93US-0049794.
PR   03-JUL-1996;   96US-0675354.
PR   30-DEC-1991;   91US-0814759.
XX
PA   (ELAN-) ELAN PHARM INC.
XX
PI   Justice A,  Singh T,  Valentino KL,  Miljanich GP,  Gohil KC;
XX
DR   WPI; 2000-038270/03.
XX
PT   Measuring the activity of test compounds in blocking voltage-gated
PT   calcium channels, binding to the omega conopeptide binding site and
PT   inhibiting norepinephrine (noradrenaline) release for treating
PT   inflammation -
XX
PS   Disclosure; Fig 1; 47pp; English.
XX
CC   A method has been developed of selecting a test compound for treating
CC   inflammation. The method comprises measuring the activity of the test
CC   compound in blocking voltage-gated calcium channels, binding to the
CC   omega conopeptide binding site and inhibiting norepinephrine
CC   (noradrenaline) release from nervous tissue. The method is useful for
CC   selecting compounds for treating inflammation. The selected compounds
CC   are capable of producing analgesia in a mammalian subject with chronic
CC   or intractable pain. Analgesia caused by selected compounds may reduce
CC   the reliance on opioid analgesic agents of the prior art which cause
CC   dependency and tolerance, requiring potentially dangerous increases in
CC   opioid doses to achieve the analgesic effect. The present sequence
CC   represents an omega conopeptide given in the present invention.
XX
SQ   Sequence   25 AA;

  Query Match             79.5%;  Score 151;  DB 21;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 4.9e-10;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 CKGKGAKCSRLMYDCCTGSCRSGKC 25
           |||||||||||||||||||||||||
Db       1 CKGKGAKCSRLMYDCCTGSCRSGKC 25


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